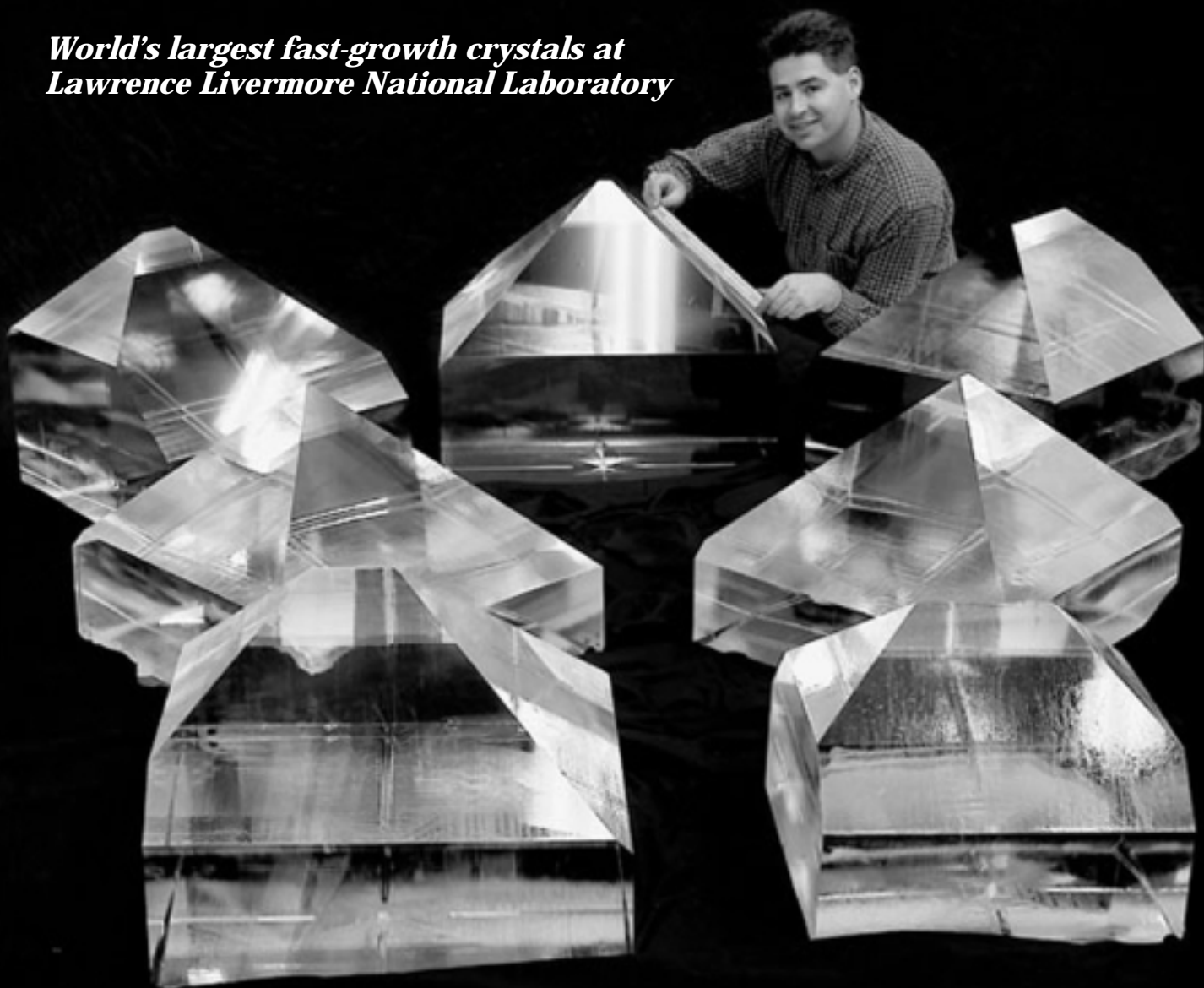


*World's largest fast-growth crystals at
Lawrence Livermore National Laboratory*

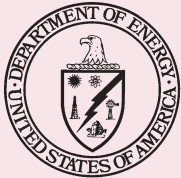


NNSA begins operations at Department

Accountability Report earns 'clean' audit from IG

National labs to expand greenhouse gas research

U.S. Department of Energy



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Secretary of Energy

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Inside

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On March 1, the National Nuclear Security Administration (NNSA) officially began operations to carry out the national security functions of the Department of Energy. On that date, about 2,000 Department employees were aligned to become employees of the NNSA.



A recent escape attempt from the West Tennessee State Penitentiary was thwarted with the help of a heartbeat detector developed by the Department of Energy's Oak Ridge National Laboratory.

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East Brunswick High School placed first in the New Jersey Regional Science Bowl sponsored by the Department of Energy's Princeton Plasma Physics Laboratory. The team will travel to Washington, D.C., in May to compete in the Department's Tenth National Science Bowl®.



On our cover

Amid an array of giant fast-growth crystals produced at the Department of Energy's Lawrence Livermore National Laboratory (LLNL), researcher Randy Floyd checks the dimensions of the world's largest, weighing in at 701 pounds and measuring approximately 26 inches by 21 inches by 23 inches high. The large crystal was grown in a record 52 days using a special rapid-growth technique. The fast-growth crystals will be sliced and polished into 1/2-inch-thick, 16-1/2 inch-square plates for use in the National Ignition Facility under construction at LLNL.

For more on the fast-growth crystals, see page 10.

National Nuclear Security Administration begins operation

On March 1, the National Nuclear Security Administration (NNSA) formally began operation. Its mission is to carry out the national security responsibilities of the Department of Energy, including maintenance of a safe, secure and reliable stockpile of nuclear weapons and associated materials, capabilities and technologies; promotion of international nuclear safety and nonproliferation; and administration and management of the naval nuclear propulsion program.

On March 2, Secretary of Energy Bill Richardson announced that President Clinton intends to nominate Air Force General John A. Gordon to serve as the Department's new Under Secretary for Nuclear Security and NNSA Administrator. General Gordon currently serves as the Deputy Director of the Central Intelligence Agency. He was one of three candidates recommended to Secretary Richardson by a high-level search committee.

"I am delighted that General Gordon has agreed to serve, pending confirmation, in this critically important post," Secretary Richardson said. "With his extensive background and experience in national security matters and proven

leadership skills, General Gordon is perfectly suited to serve as the first NNSA Administrator."

As directed by President Clinton, Secretary Richardson will perform all duties and functions of the Under Secretary for Nuclear Security until confirmation of a nominee by the U.S. Senate. The three Deputy NNSA Administrators are:

- General Thomas F. Gioconda, who was Acting Assistant Secretary for Defense Programs, will serve as Acting Deputy Administrator for Defense Programs;
- Rose E. Gottenmoeller, who was Assistant Secretary for Nonproliferation and National Security, will serve as Acting Deputy Administrator for Defense Nuclear Nonproliferation; and
- Admiral F. L. Bowman, who was Director, Office of Naval Reactors, is now Deputy Administrator for Naval Reactors.

On March 9, President Clinton announced his intent to nominate Madelyn R. Creedon as Deputy Administrator for Defense Programs. Creedon is currently Counsel for the Minority Staff of the Senate Committee on Armed Services. From 1995 to 1997, she served as Associate Deputy Secretary of Energy for National Security Programs.

As of March 1, about 2,000 Department employees were realigned to become employees of NNSA. This includes employees of the Offices of Defense Programs, Fissile Materials Disposition, and Nonproliferation and National Security, and Nevada and Albuquerque Operations Offices; most employees of the Office of Naval Reactors, the Pittsburgh Naval Reactors Office (including the Idaho Branch Office), and the Schenectady Naval Reactors Office (including the West Mifflin Field Office); and some other employees, mainly at the Oakland, Oak Ridge, and Savannah River Operations Offices.

"All of the Department's programs...will continue to work together," Secretary Richardson said. Current Department staff offices will continue to provide business, administrative, financial, and other support services to NNSA. NNSA and non-NNSA laboratories and facilities will continue to perform work and provide services to NNSA and non-NNSA missions and programs.

Additional information and the new organization charts for the Department and NNSA are available at <http://www.nnsa.doe.gov> or through links on the Department's home page, <http://www.doe.gov>. ❖

Power Outage Team issues final report

On March 13, the Department of Energy's Power Outage Study Team delivered to Secretary of Energy Bill Richardson its final report on electricity outages and system disturbances that occurred last summer. The report contains the team's findings and 12 recommendations of appropriate Federal actions to help enhance electric reliability and avoid similar problems this summer.

The recommendations include promoting market-based approaches to ensure reliable electric services; enhancing emergency preparedness activities for low-probability, high-

consequence events on bulk-power systems; promoting best reliability practices at Federal utilities; promoting public awareness of electric reliability issues; and encouraging energy efficiency as a means of enhancing reliability.

The report states that competition in the electricity industry can save customers money and help with improved reliability. "Federal electricity legislation is an essential component of the effort to help alleviate power outages this summer," Secretary Richardson said. "Congress must move ahead to make changes in the

Federal statutory framework to provide the certainty that is needed to achieve reliable electric service in competitive wholesale and retail markets."

The Report of the U.S. Department of Energy's Power Outage Study Team: Findings and Recommendations to Enhance Reliability from the Summer of 1999 is available on the Internet at <http://www.policy.energy.gov>, click on "Publications/Reports." Copies also are available from the Department's Office of Public Inquiries, 202-586-5575. ❖

Accountability Report earns 'clean' audit

The Department of Energy recently submitted to Congress and the Office of Management and Budget its Fiscal Year (FY) 1999 Accountability Report. The report was submitted prior to the March 1 due date and integrates information on the Department's program performance, management controls, and financial results during the previous fiscal year, which ended Sept. 30, 1999.

The report was developed by the Office of Chief Financial Officer with input from all Department Headquarters and Field organizations. The Department's FY 1999 financial statements—a major component of the Accountability Report—were audited by the Office of Inspector General. The financial statements earned an unqualified or "clean" audit opinion from the Inspector General, who indicated they reflect the Department's dedication to sound financial management.

The timely submission of the Accountability Report with an unqualified audit opinion is a significant accomplishment. This assures the taxpayers that the Department's financial statements present fairly the

results of operations and places the Department among the leaders in improving Federal financial management and accountability.

The success of the Department's efforts was confirmed by the Senate Governmental Affairs Committee when it revealed that, unlike DOE, many Federal agencies failed to get clean opinions on their financial statements. Only 11 of the 24 largest Federal departments and agencies' FY 1999 books had received clean opinions by auditors by the March 1 deadline.

Completing the Accountability Report was an intensive, joint effort by staff of the Chief Financial Officer and the Inspector General. A major undertaking was ensuring the accuracy of the Department's estimate of future environmental cleanup costs, one of the largest liabilities in the Federal Government. Another was making sure that Western Area Power Administration financial data was accurate, due to implementation of a new financial



Inspector General Gregory Friedman (right) congratulates Chief Financial Officer Michael Telson on the successful completion of the Department of Energy FY 1999 Accountability Report and for earning a clean audit opinion of the Department's financial statements.

system at the facility. The Accountability Report replaced six Department reports and reduced reporting volume by over 50 percent.

Copies of the FY 1999 Accountability Report are scheduled to be distributed to all Department organizations in early April. The report also is available on the Internet at <http://www.cfo.doe.gov/content.htm>. ♦

Department issues FY 2001 R&D portfolio

On March 16, Secretary of Energy Bill Richardson released the Department of Energy's Research and Development Portfolio for fiscal year 2001. The portfolio describes all the research and development (R&D) activities that the Department supports to achieve its mission goals in each of the Department's four strategic business lines—energy resources, environmental quality, science, and national security.

"We have created in one place a detailed breakdown of all of the Department's research activities," Secretary Richardson said. "This R&D Portfolio is helping us analyze where we need to devote more resources, and ensure that our research is aligned with our strategic R&D

plans to meet the needs of our diverse missions."

Research and development accounts for 40 percent of the Department's annual budget. Among the top Federal R&D funding agencies, the Department is first in support of physical sciences and scientific facilities and is the second largest supporter of mathematics and computer sciences. DOE will spend a total of \$7 billion in R&D this year and plans to spend \$7.65 billion next year, an increase of almost eight percent.

The R&D Portfolio will help the Department integrate and strengthen the planning and management of its research and development. The document also provides a basis for

evaluating whether the portfolio is appropriately balanced to meet the Department's long-term mission goals. The portfolio is available on the Internet at <http://www.osti.gov/portfolio/>.

Instituting a portfolio approach to manage R&D is one of several reforms the Department has initiated over the years to strengthen the management and administration of research programs. Recently, the Department revitalized its R&D Council to oversee and coordinate research policy formation and implementation. The council is composed of the DOE Assistant Secretaries responsible for research and development and is chaired by Under Secretary Ernest Moniz. ♦

Department research satellite launched

In the early morning hours of March 12, a unique Department of Energy research satellite was successfully launched and placed into orbit at Vandenberg Air Force Base, Calif. The Multispectral Thermal Imager (MTI) satellite includes a sophisticated telescope that collects day and night ground images in 15 spectral bands and gives the satellite the ability to photograph light and heat patterns not visible to the human eye, with performance previously achievable only in a laboratory setting.

The Department's Sandia and Los Alamos National Laboratories in New Mexico developed the satellite, which was designed and built by a government and industry team. The telescope was calibrated at Los Alamos.

During its three-year mission, the Multispectral Thermal Imager will be controlled from a ground station at Sandia. Imagery data will be processed at Los Alamos, and the Department's Savannah River Technology Center in South Carolina will coordinate cooperating test sites. Satellite images will be compared to ground-based measurements simultaneously collected from these sites.

On March 13, operators in Sandia's ground control station

reported the satellite appeared to be in good working order based on four passes over Albuquerque. Preliminary reports indicated all of the satellite's instruments and functions were working and responding properly. It will take at least a month to check out the satellite completely.

The imager technology is expected to have a broad range of national defense and civilian applications ranging from treaty monitoring to mapping waste heat pollution in lakes and rivers, vegetation health, and volcanic activity. An MTI users group of more than 100 researchers from 50 national defense and civilian agencies will conduct experiments using MTI images of instrumented ground sites.

The satellite also carries a High-energy X-ray Spectrometer, sponsored by the National Oceanic and Atmospheric Administration. This device will study a type of solar flare that can endanger astronauts and damage space equipment.

MTI is the third research satellite built by the Department in the last seven years. The previous satellites, ALEXIS and FORTE, are still in orbit, functioning, and conducting valuable research. ♦



Sandia engineers Chuck Looney (left) and Dennis Gutierrez make last-minute checks of the solar arrays on the Multispectral Thermal Imager satellite prior to encapsulating the satellite in preparation for launch.

New technique combats arthritis with neutrons

Physicists at the Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL) and the Massachusetts Institute of Technology (MIT) are collaborating on a new technique that may someday ease the pain of severe rheumatoid arthritis.

MIT physicist Jacquelyn Yanch has devised a new way to kill the synovium, the lining that overgrows and ruins a joint afflicted with rheumatoid arthritis. Yanch injects a boron compound into an arthritic joint and exposes the joint to a beam of subatomic particles called neutrons. The boron absorbs some of the neutrons and forms a radioactive substance that quickly decays. Radiation from the decay kills the synovium

and vanishes as soon as the neutron beam is turned off, since boron itself is not radioactive.

INEEL is studying the speeds and trajectories of the neutrons in the beam so Yanch and her research team can better estimate how much radiation is being administered. For more than 10 years, the laboratory has conducted research on boron neutron capture therapy, a treatment for brain tumors that uses the same interaction between boron and neutrons.

No one knows what initiates or how to cure rheumatoid arthritis, a potentially crippling disease that afflicts more than 2,000,000 Americans. The disease arises when the immune system mistakenly targets the synovium, the membrane that

surrounds a joint and holds the lubricating synovial fluid. The synovium grows abnormally and invades cartilage and bone, causing them to soften and crumble.

Drugs can often hold the disease in check, but between 10 and 20 percent of patients continue to suffer in at least one joint. Then, the only way to slow the progress of the disease is to get rid of the synovium.

Yanch is testing the technique on the knees of rabbits with induced rheumatoid arthritis. Early results are promising. "We have very clear evidence that we've killed the synovium, which is what you want to do," Yanch said. More work must be done before testing the treatment on humans. ♦

Optical transistor under study at ORNL

Researchers at the Department of Energy's Oak Ridge National Laboratory (ORNL) are in the early stages of development of an all-optical transistor which they believe one day may replace the electronic transistor that is common today. "We're talking about using photons instead of electrons and creating a new kind of transistor that's 100 times faster than today's transistors," said Panos Datskos of ORNL's Engineering Technology Division.

A transistor is an active component of an electronic circuit consisting of a tiny block of semiconducting material to which at least three electrical contacts are made. Transistors, which can be used as an amplifier, detector or switch, are integral parts of computers, telephones and virtually all electronic components.

"Optical switching by photon activation can be thought of as a transistor with input photons controlling the signal photons," said colleague

Slo Rajic. "It's analogous to the electronic transistor but it incorporates the benefits of photonics."

As speeds in fiber optic communications, sensing, and computation processing increase, faster switching mechanisms are necessary. The advantages of optical transistors include greater bandwidth and speed close to that of light. Developers worldwide, however, have been unable to overcome certain obstacles and have had to make significant tradeoffs in at least one of four basic required areas—throughput vs. rejection efficiency, cost, speed, and size.

Several approaches for optical switching mechanisms have been pursued for over 20 years, but they have not resulted in a practical all-



ORNL researchers Panos Datskos (left) and Slo Rajic are studying optical transistors. An optical switch (enlarged and shown on the monitor) would be activated by photons, which would follow tiny wave guides and result in voltage being turned on or off.

optical transistor. The technique used by Datskos and Rajic uses a diode laser LED that causes optical absorption of waveguide material. ❖

Energy agreements signed with Israel, Palestinian Authority

On Feb. 22, 2000, during a recent trip to the Middle East, Secretary of Energy Bill Richardson met with government officials of Israel, including President Ezer Weizman, Prime Minister Ehud Barak, Minister of National Infrastructure Eli Suissa, and Regional Cooperation Minister Shimon Peres. His discussions included expansion of energy cooperation and scientific exchange between the United States and Israel.

"Today, we expand our ties with Israel in energy technology, nonproliferation, and scientific exchange," said Secretary Richardson. "Accelerating scientific exchange on energy projects will contribute to an environmentally sustainable energy infrastructure throughout the region."

The energy cooperation agreement is an umbrella agreement for research and development in various fields of energy technology and includes two

implementation agreements. The first establishes cooperation between the Weizmann Institute in Israel and the U.S. Department of Energy in the field of renewable energy technology. The second will allow both countries to jointly test and share information on advanced batteries for electric and hybrid vehicles.

Also on Feb. 22, a meeting between Secretary Richardson and Chairman Yasser Arafat marked the beginning of cooperation on energy issues between the United States and the Palestinian Authority. Secretary Richardson signed a Joint Statement of Intent on Energy Cooperation with Chairman Dr. Abdulrahman Hammad of the Palestinian Energy Authority in the presence of Chairman Arafat.

"This is the beginning of a strong working relationship on energy issues and will be an important contri-

bution to Administration efforts to enhance economic development in the West Bank and Gaza," said Secretary Richardson. "I hope to expand our relationship in the future, into more concrete projects and activities to enhance the energy infrastructure in the region."

The Joint Statement initiates the exchange of information between the U.S. Department of Energy and the Palestinian Energy Authority in several areas, including energy policy planning analysis, energy regulation, energy efficiency, renewable energy technologies, and basic energy research. Secretary Richardson invited the Palestinian Energy Authority to visit the Department's National Renewable Energy Laboratory and will send a technical team to discuss the development of regulatory frameworks for energy. ❖

Department selects first 'Vision 21' projects

On March 7, the Department of Energy selected six public-private projects in the first of four rounds of competition under its "Vision 21" program to design a new type of energy system that could change the way people think about power plants in the 21st century. "The projects we are announcing today put us one step closer to a pollution-free energy plant of the future," said Secretary of Energy Bill Richardson.

Vision 21 power plants would be capable of processing a wide range of fuels, such as coal, natural gas, biomass or municipal wastes, and generating multiple forms of energy, such as electricity, transportation fuels and chemicals. The energy plants would produce virtually no emissions.

Four projects will focus on key technologies for a Vision 21 plant. The other two projects will develop advanced methods for designing

Vision 21 plants and integrating the key modules using new computer processes. The projects and proposed DOE awards are:

- **FuelCell Energy, Inc.**, Danbury Conn., \$2.5 million, to develop a "hybrid" power system that combines a fuel cell and gas turbine to generate electricity at ultra-high efficiencies.
- **Siemens Westinghouse Power Corporation**, Pittsburgh, Pa., \$2.1 million, to develop a membrane for separating oxygen from air and using it to convert the depleted fuel from a specially modified solid oxide fuel cell into carbon dioxide and steam.
- **Eltron Research, Inc.**, Boulder, Colo., \$1.74 million, to develop a ceramic membrane to separate hydrogen from gases exiting a coal gasifier for later use in a fuel cell.
- **Clean Energy Systems, Inc.**,

Sacramento, Calif., \$1.77 million, to adapt a rocket engine design to burn a clean fuel gas and mix the combustion products with water to produce a high-pressure, steam-saturated gas stream to power an advanced turbine.

- **National Fuel Cell Research Center**, Irvine, Calif., \$1.5 million, to define engineering issues associated with integrating key components and subsystems into Vision 21 plants.
- **Fluent, Inc.**, Lebanon, N.H., \$1.5 million, to build a "virtual demonstration" system to give designers a way to model a fully functional Vision 21 plant on a computer.

In each project, the industrial partner will contribute at least 20 percent of the total project cost. Additional information on the Vision 21 program is available at <http://www.fe.doe.gov>. ♦

DOE labs to expand greenhouse gas research

Eight Department of Energy national laboratories will expand their research into the field of capturing and storing greenhouse gases. The Department is providing \$7.7 million to study innovations in the first of two major project selections expected this year in its carbon sequestration program.

In seven of the eight projects, laboratory researchers will team with scientists from the private sector, universities, or other government agencies. The eighth project is being managed solely by Argonne National Laboratory. The projects and proposed DOE awards are:

- **Lawrence Berkeley, Lawrence Livermore (LLNL)**, and **Oak Ridge National Laboratories (ORNL)**, Chevron, Texaco, Pan Canadian Resources, Shell CO₂ Co., BP-Amoco, Statoil, Alberta Research Council Consortium; a three-year study of sequestration of carbon dioxide (CO₂) in geologic formations; \$2.25 million.

- **Sandia and Los Alamos National Laboratories (LANL)**, Strata Production Co., New Mexico Petroleum Recovery Research Center; a three-year study of ways to inject CO₂ into depleted oil reservoirs; \$2.025 million.
- **LANL, Idaho National Engineering and Environmental Laboratory (INEEL)**, University of Colorado, Pall Corp., Shell Oil Corp.; a three-year project to develop an improved high-temperature polymer membrane for separating CO₂ from methane and nitrogen gas streams; \$1.32 million.
- **INEEL**, Purdue University, Pacific Gas and Electric, Southern California Gas, BP-Amoco; a three-year project to develop a "gas-liquid contactor" that creates a whirlwind-like vortex to separate CO₂ from natural and flue gases; \$750,000.
- **INEEL**, Montana State University, University of Memphis; a two-year study to grow microorganisms as "biofilms" to capture and convert

CO₂ through photosynthesis; \$420,000.

- **LLNL**, U.S. Geological Survey, Monterey Bay Aquarium Research Institute; a two-year study of ice-like hydrates that form when cold CO₂ is pumped into deep ocean basins; \$360,000.
- **ORNL, Pacific Northwest National Laboratory**, Ohio State University; Virginia Polytechnic Institute; a two-year project to study the use of soil enhancers from solid wastes to improve the natural carbon uptake of lands; \$280,000.
- **Argonne National Laboratory**; a two-year study of ways to retrofit a coal power plant with recirculating technology to concentrate CO₂ to transport it to sequestration sites; \$260,000.

A second group of projects proposed directly by industry will be announced later this spring. Additional information on the projects and the carbon sequestration program is available at <http://www.fe.doe.gov>. ♦

LBNL develops energy-efficient fume hood



Scientists at the Department of Energy's Lawrence Berkeley National Laboratory (LBNL) have developed an advanced, energy-efficient laboratory fume hood technology. Fume hoods capture, contain and exhaust hazardous fumes created during industrial processing or laboratory experiments.

Fume hoods use large amounts of energy, estimated to be one gigawatt in California alone, due to the fan power needed to move air out of the hood and to condition make-up air. LBNL's new low-flow, constant air volume system uses only 30 percent of the airflow of standard laboratory fume hoods. The design uses a "push-pull" approach to contain the fumes and move the air. Small fans push air into the hood and into the user's breathing zone, setting up a "divider" of air that prevents fumes from reaching the user.

Because less air is flowing through the hood, a building's environmental conditioning system can be downsized, saving both energy and construction costs. Berkeley Lab has applied for a patent on the low-flow fume hood technology. ♦

King receives Stello Safety Leadership Award



Joseph King, a senior nuclear engineer in the Office of Technical Support, Office of the Deputy Administrator for Defense Programs, National Nuclear Security Administration, recently received the Stello Safety Leadership Award from the Defense Nuclear Facilities Safety Board (DNFSB). The award, named after its first recipient Victor Stello, Jr., recognizes a Department of Energy employee who has demonstrated exemplary leadership in promoting safety management.

The Board recognized that King's "effective leadership and sustained superior performance in preparing facilities for startup, upgrading and assessing safety management programs, developing nuclear safety directives, and mentoring line managers on performing critical self-assessments were significant contributors to Integrated Safety Management improvements in DOE." In the photo, DNFSB Chairman John T. Conway (right) presents the award to King. ♦

Heartbeat detector catches escaping inmate



The *Knoxville News Sentinel* recently reported that a convicted murderer serving two life sentences attempted to escape from the West Tennessee State Penitentiary in a truck filled with basketballs. The escape was foiled with the help of a heartbeat detector developed by the Department of Energy's Oak Ridge National Laboratory (ORNL) and Y-12 Plant in Oak Ridge and sponsored by the Department's Office of Safeguards and Security.

The detector works by attaching seismic sensors to vehicles and using a customized computer program to search for vibration patterns of human heartbeats. The technology was originally developed to detect unauthorized individuals attempting to access secure areas at the Department by hiding in vehicles. The technology was shared with the prison industry to likewise help detect escape attempts.

ORNL currently is evaluating two commercial versions of the technology. Researchers also are working to improve the detector's performance in windy conditions and on remote screening of vehicles. The heartbeat detector received an R&D 100 Award in 1997. ♦

Seniors learn to surf the net

Employees of the Department of Energy's Pacific Northwest National Laboratory (PNNL) are volunteering their time to help residents of Columbia Edgewater Retirement Center in Richland, Wash., learn how to use computers. About 15 volunteers, including two local middle school students, volunteer six to 10 hours a week helping residents learn how to use e-mail, access the Internet, and perform other computer tasks. Online Senior Coaches is the brainchild of Merry Loew of PNNL's Economic Development and Communications Office, who got the idea for the project from her father, a resident of the retirement center. Loew's father passed away before she could make it happen, but she persevered and the project got under way last fall.

"It's so wonderful that these teachers are sharing their time, effort and knowledge," said 89-year-old resident Ruth Rawlings who looks forward to each session. In the photo, PNNL volunteer Eddie Brittenham (right) provides e-mail tips to seniors Rawlings and Pauline Kester (at the computer). ♦



DOE investigation team visits Portsmouth

A team of 21 technical experts from the Department of Energy's Office of Environment, Safety and Health recently conducted an investigation of environment, safety and health (ES&H) activities at the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio. The investigation was a follow-up to a similar investigation at the Paducah Gaseous Diffusion Plant.

An initial scoping team visited Portsmouth Nov. 30 to Dec. 3, 1999, to evaluate current DOE operations and "legacy" practices that occurred in plant operations from 1954 to the present. The investigation continued with two on-site data collection and analyses periods in January and February. The team interviewed current and former workers, conducted tours and walkdowns of facilities and grounds, performed environmental sampling and radiological surveys, and evaluated ongoing ES&H programs and activities.

At right, the investigation team is overseeing surface water sampling in Little Beaver Creek near the Portsmouth plant. Team leader Pat Worthington is standing third from left. ♦



DOE, Russia, Norway cooperate on radiation safety

Russian Federation naval officers and Norwegian Ministry of Defense representatives recently visited Department of Energy (DOE) Headquarters to discuss radiological worker safety and the dismantlement of Russian nuclear submarines. The visit followed technical meetings at the Department's Brookhaven National Laboratory (BNL).

The discussions were part of a joint DOE/Department of Defense effort under the Arctic Military Environmental Cooperation Program to improve Russian radiation monitoring capabilities, radiation dosimetry, and radiation safety procedures and techniques for submarine dismantlement and waste handling. DOE and Russia will use a Norwegian system to monitor Russian nuclear submarines awaiting fuel removal and dismantlement.

At the meeting (l-r) are Mark Mazur, Director, Office of Policy; Paul Moskowitz, Project Manager, BNL; three Norwegian officials; Abraham Haspel, Deputy Assistant Secretary, Office of Energy Efficiency and Renewable Energy; Carolyn Huntoon, Assistant Secretary for Environmental Management (EM); Randal Scott, EM Program Manager; and the Russian naval officers. ♦



Livermore produces largest fast-growth crystal

The world's largest fast-growth crystal, weighing in at 701 pounds, has been produced by researchers at the Department of Energy's Lawrence Livermore National Laboratory (LLNL). The pyramid-shaped KDP (potassium dihydrogen phosphate) crystal measures approximately 26 inches by 21 inches by 23 inches high. It was grown in a record 52 days using a special rapid-growth technique developed by LLNL.

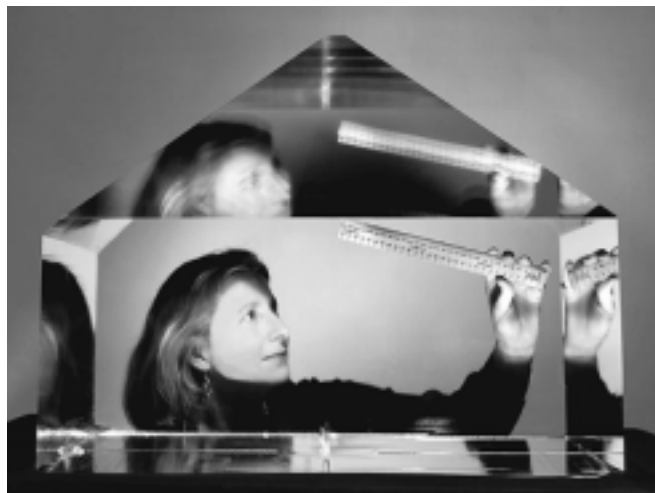
The enormous crystal is one of several grown using the LLNL process, which is based on a Russian technique pioneered by Natalia Zaitseva, who is now with the laboratory. The rapid-growth process begins with a synthetic, thumbnail-sized seed crystal placed inside a six-foot-high tank filled with nearly a metric ton of supersaturated KDP solution at 150 degrees Fahrenheit.

The temperature is gradually lowered to maintain supersaturation as the crystal extracts salt from the solution and grows—up to half an inch every day. By the time the solution reaches room temperature, the crystal is at its full size. The record-sized crystal was achieved by

giving the solution a transfusion of additional salt through a device called a continuous filtration system, which helps maintain crystal quality.

"This technique offers the possibility of producing even larger and higher quality crystals in the future," said Ruth Hawley-Fedder, group leader of the Livermore crystal growing team. "Our newest recordholder could have grown even larger, but we simply ran out of room in our growth tank." The previous crystal record-holder weighed 650 pounds and also was produced at LLNL using an earlier variant of the rapid-growth technique.

The fast-growth crystals will be sliced and polished into 1/2-inch-thick, 16-1/2-inch-square plates for use in the National Ignition Facility (NIF), a giant laser under construc-



Ruth Hawley-Fedder measures the dimensions of the record-setting crystal.

tion at LLNL that will help maintain the safety and reliability of the nation's nuclear weapons stockpile. The crystal plates will be used to convert the laser's infrared light beams to ultraviolet light just before the beams strike the laser target.

NIF will require as many as 600 crystal plates. The LLNL technique has been shared with commercial crystal suppliers who are producing crystals for the facility. ♦

NEW Publications

Energy Information Administration reports: ***Voluntary Reporting of Greenhouse Gases 1998*** (DOE/EIA-0608-98) indicates that the 212 million metric tons of carbon dioxide equivalent reported in 1998 by 187 U.S. companies and other organizations as voluntary reductions of greenhouse gas emissions is almost triple the amount reported in 1994. ***Performance Profiles of Major Energy Producers 1998*** (DOE/EIA-pp98) reports that capital expenditures of U.S. major energy-producing companies totaled \$75.1 billion in 1998, the second highest level since 1974. Available from the U.S. Government Printing Office, 202-512-1800; the National Energy Informa-

tion Center, EI-30, Room 1E-238 Forrestal Building, USDOE, Washington, DC 20585; 202-586-8800; and at <http://www.eia.doe.gov>.

Horizontal Market Power in Restructured Electricity Markets (DOE/PO-0060) from the Department of Energy's Office of Policy explores the potential for electric companies to raise prices in restructured electricity markets and identifies the need to protect consumers through Federal electricity restructuring legislation. The 24-page report is available at <http://www.energy.gov/news/HMP-0308.pdf>.

Office of Inspector General reports: ***Inspection of the Sale of a Paragon Supercomputer by***

Sandia National Laboratories (DOE/IG-0455); ***The Management of Tank Waste Remediation at the Hanford Site*** (DOE/IG-0456); ***Follow-up Audit of Program Administration by the Office of Science*** (DOE/IG-0457); ***In-Vitro Bioassay Services at Department of Energy Facilities*** (DOE/IG-0458); ***Unclassified Computer Network Security at Selected Field Sites*** (DOE/IG-0459).

Available from the U.S. Department of Energy, Office of Inspector General Reports Request Line, 202-586-2744; or at <http://www.ig.doe.gov/>. ♦

Research DIGEST

A material under development at the Department of Energy's **Ames Laboratory** may help automotive companies attain their goal of lighter, more fuel-efficient vehicles. Researchers David Jiles and Bill McCallum say a 1/4-inch-thick ring of the material, a cobalt-ferrite composite, could be used in an electronic torque sensor to regulate the steering power provided to a car's wheels by an electric motor. This would enable automakers to eliminate the heavy, energy-draining hydraulic pumps currently used in power-steering systems. With a sensor using a small ring of cobalt-ferrite composite placed strategically on the steering column, as a driver turns the wheel, the magnetization of the cobalt-ferrite ring changes in proportion to the force applied by the driver. A nearby sensor detects the change, interprets the force to turn the wheels, and relays the information to an electrical power-assist motor. (Susan Dieterle, 515-294-1405)

Scientists at the Department of Energy's **Sandia National Laboratories** are researching ways to use a new semiconductor alloy, indium gallium arsenide nitride (InGaAsN) as a photovoltaic power source for space communications satellites and for lasers in fiber optics. The new material, which may be used as part of an electricity-generating solar cell, has a potential 40 percent efficiency rate when put into a state-of-the-art multilayer cell. Physicist Eric Jones says an InGaAsN solar cell will ultimately have four layers—from top to bottom, indium gallium phosphide, gallium arsenide, two percent nitrogen with indium in gallium arsenide, and germanium. Existing satellite systems use either silicon for solar cells, with a theoretical efficiency around 23 percent, or a two-layered solar panel made up of indium gallium phosphide and gallium arsenide, with efficiency around 30 percent. (Chris Burroughs, 505-844-0948)

An instrument that detects tiny explosions, under development at the Department of Energy's **Oak Ridge National Laboratory**, could lead to an inexpensive hand-held device to screen people and luggage at airports or to detect land mines. The device is based on miniature micro-machined silicon cantilevers one-tenth the width of a human hair that can detect tiny forces caused by heat-induced nano-explosions. The instrument works by absorbing TNT molecules given off by explosives. As the semiconductor material absorbs the TNT and is heated with power from a simple battery, the molecules undergo tiny explosions that are detected by an optical beam. Researcher Thomas Thundat says the device's sensitivity is due to a micro-mechanical silicon sensor that can be heated to very high temperatures quickly. The instrument regenerates itself after each use for continuous operation. (Frank Juan, 865-576-8540) ♦

SRS team solves glass waste pouring problem

When the Defense Waste Processing Facility (DWPF) at the Department of Energy's Savannah River Site developed problems pouring molten vitrified high-level waste, it took the combined efforts of engineering and operations personnel of the facility and Savannah River Technology Center (SRTC) scientists to find a solution.

DWPF was the nation's first—and is the world's largest—plant for industrial-scale vitrification of high-level radioactive waste. The waste is mixed with a sand-like borosilicate glass frit, which is then melted and poured into 10-foot high stainless steel canisters to cool and harden into a solid glass form for long-term storage and disposal.

The extremely high temperatures and corrosive nature of the waste

glass mixture soon took their toll on the melter's pour spout. Instead of pouring straight down the middle, the molten glass would adhere to the cooler wall of the spout below. The solidified glass would collect in the lower portion of the spout. Operations had to stop as often as twice a day to clean out the spout.

The Savannah River team put their heads together to develop a solution that could be implemented remotely using a robotic arm behind heavy shielding. The answer was an "insert" that could be remotely maneuvered into the pour spout—and replaced as often as necessary—to keep the glass flowing freely. Immediately, DWPF melter operations went from stopping twice daily to clean the pour spout to operating

continuously for three months with the new insert. Also, with the pour spout insert, the life of the melter has been extended.

The team continues to learn more about the pour spout, its changing condition, and how to improve the insert design to overcome corrosion problems. Currently, experiments are ongoing with various sealing materials, gaskets, and sleeves.

A major high-level waste milestone was reached in January 2000 when DWPF poured its three millionth pound of radioactive glass. Since operations began in March 1996, more than 760 canisters of glass have been poured. It is expected to take 20 to 25 years to turn the entire site inventory of high-level waste into glass. ♦

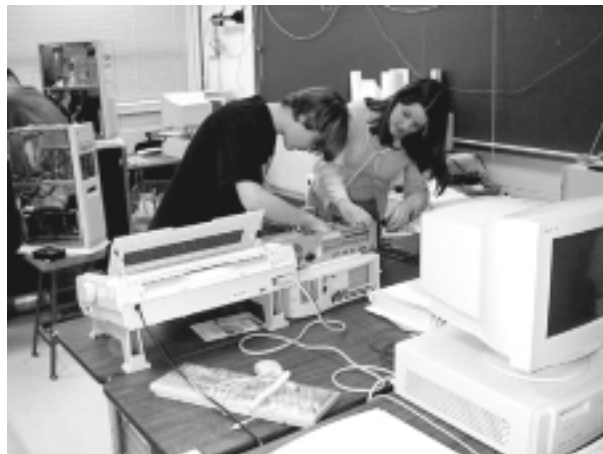
Education NOTES

The Department of Energy's **Brookhaven National Laboratory** and Abilities, Inc., Albertson, Long Island, are sponsoring a training program for individuals with disabilities who wish to become laboratory assistants. Participants receive preparation to qualify for entry-level positions in clinical, pharmaceutical, environmental and research laboratories in the community. The program offers training for 12 students, three times per year, for 15 weeks per semester. Training will be conducted in Brookhaven's Medical Department.



East Brunswick High School placed first in the New Jersey Regional Science Bowl sponsored by the Department of Energy's Princeton Plasma Physics Laboratory (PPPL) on Feb. 26, 2000. Twenty-four teams from 22 high schools in New Jersey and Pennsylvania competed in the double-elimination tournament. The East Brunswick team and winners from other regional competitions held nationwide will vie for top honors in the Department's Tenth National Science Bowl®, May 5-8, 2000, at the National 4-H Center in Chevy Chase, Md. Left to right are Jack Qian, Mike Berkley, PPPL Science Bowl Coordinator James Morgan, Steven Brauer, Team Coach Paul Kimmel, Mike Ressler, U.S. Representative Rush Holt, and John Lai.

Scientists at the Department of Energy's **Argonne National Laboratory** in Illinois have helped Chicago's Museum of Science and Industry create an interactive, online exhibit that allows learning to move from the museum into the city's classrooms. "Tales from the Underground" is an online addition to the museum's "Reusable City" exhibit which shows visitors how the choices people make in their daily lives affect the environment. Using a kit from the museum, students conduct analyses of backyard soil samples and then share their findings with students in other parts of Chicago via the online exhibit. Specialized maps of 77 Chicago neighborhoods were made available over the web site through the MaD (Maps and Date) browser used by Argonne's Environmental



Future computer repair technicians at the Fayette County Area Vocational Technical School in Pennsylvania are learning their craft and repairing old computers, printers, and automated data processing equipment as part of their classwork through a program sponsored by the Department of Energy's National Energy Technology Laboratory (NETL). After repair, the equipment will be donated at no cost to four area school districts whose students attend the vo-tech facility. The donation of the surplus equipment, valued at \$776,000, was coordinated by NETL's Math and Science Program. NETL oversees a number of programs that enrich the math and science curricula of area elementary and secondary schools and universities. Through these programs, local schools and colleges have received a total of about \$4.9 million in used computer and energy laboratory equipment since 1995.

Assessment Division for characterization and remediation data collecting during DOE site cleanup work. Students will enter data on the maps and upload the results to a master database maintained by Argonne.



On Feb. 2, 2000, a ribbon-cutting ceremony officially opened the **Emergency Operations Training Academy** for business at the Department of Energy's Non-proliferation and National Security Institute. The academy is located on Kirtland AFB near the Department's Albuquerque Operations Office in New Mexico. John McBroom, Director, Office of Emergency Operations, has directed the new academy to provide the DOE Federal and contractor staff with the most efficient and effective emergency management training. Interactive-televideo, classroom, and computer-based training will be used. More information and an up-to-date schedule of training and activities at the Emergency Operations Training Academy is available at <http://www.nnsi.doe.gov>. ♦

COMING Events

May

5-8 10th National Science Bowl, Chevy Chase, Md. Sponsored by the Department of Energy. Winners from 60 regional tournaments held across the country from January through March will compete in the national competition. For questions or to volunteer, contact Sue Ellen Walbridge, Office of Science, 202-586-7231, or e-mail at sue-ellen.walbridge@oer.doe.gov.

10-12 Asia Pacific Economic Cooperation (APEC) Energy Ministers Conference, San Diego, Calif. Cosponsored by the Department of Energy and the City of San Diego. The conference will focus on strategies to implement existing policy commitments and to

enhance investment in clean and sustainable energy development, on opportunities for regional energy market integration, and on continued transition to a market-oriented business climate. Attendees will include Energy Ministers and representatives of APEC member economies and representatives from international and regional organizations and the region's private energy sector. More details and registration information are available at <http://www.apecenergy.org> or from APEC Conference Headquarters, 703-352-7633.

June

11-15 5th Annual Technology Partnerships for Emergency Management Workshop and Exhibition, Colorado

Springs, Colo. Sponsored by the Federal Emergency Management Agency and hosted by the Department of Energy's National Renewable Energy Laboratory. The workshop provides an opportunity for emergency managers from local, state, and Federal organizations to view the latest technological advances for improving preparedness, response, mitigation, and recovery. A highlight will be a demonstration of advanced solar technology applications and other renewable energy technologies. Additional information is available at http://www.nrel.gov/surviving_disaster/fema2000/ or from Kimberly Taylor, NREL, 303-275-4358, or e-mail at kimberly_taylor@nrel.gov. ♦

Actions strengthen small business program

On Feb. 14, 2000, Secretary of Energy Bill Richardson announced new steps aimed at increasing small business participation throughout the Department of Energy's core missions and programs. "The Department has a strong record of providing opportunities to small business and has benefitted greatly from small business innovations," Secretary Richardson said. "We want to build on our record and forge new innovative partnerships with small business concerns so they can become fully involved in DOE program activities."

Secretary Richardson set a combined prime contracting and subcontracting goal of \$3.3 billion for fiscal year 2000, including the \$757.6 million in prime contracting awards to small business as assigned by the Small Business Administration. Other initiatives include:

- creating a Small Business Committee to report directly to the Secretary and Deputy Secretary on the development and implementation of Department and contractor programs to promote small business participation;
- developing procurement tools and

techniques in awarding prime contracts and subcontracts to fully engage small business in the Department's core mission areas, including the use of 8(a), 8(a) pilot, Mentor Protege, and HUBZone programs and anti-bundling policies;

- strengthening small business functions in program, field, and major contractor operations, including

improved tracking and monitoring mechanisms; and

- establishing an annual DOE-wide small business conference, the first of which is set for April 25-27, 2000, in Denver, Colo. Information on the conference is available at <http://www.oakridge.doe.gov/procurement/SmallBusinessAwards.htm>. ♦

New SEAB members named

Secretary of Energy Bill Richardson recently appointed three additional members to the Secretary of Energy Advisory Board (SEAB). The new members are:

- **J. Brian Atwood**, Executive Vice President, Citizens Energy Corporation, and Director, Citizens International;
- **Daphne Kwok**, Executive Director, Organization of Chinese Americans Inc., and Founding Chair, National Council of Asian Pacific Americans; and
- **Burton Richter**, Paul Pigott Professor of Physical Sciences,

Stanford University, and Director Emeritus of the Department of Energy's Stanford Linear Accelerator Center.

SEAB is the highest-ranking external advisory board chartered in the Department and reports directly to the Secretary of Energy. The board provides the Secretary with timely, balanced, independent advice on a variety of issues affecting the Department. Members serve two-year terms. Information on SEAB and a list of members is available at <http://www.hr.doe.gov/seab/>. ♦

People IN ENERGY

Raymond Davis, Jr., a chemist at the Department of Energy's Brookhaven National Laboratory, is one of two winners of the 2000 Wolf Prize in Physics. The \$100,000 prize, awarded by the Wolf Foundation in Israel, will be conferred by President of Israel Ezer Weizman at a special ceremony in Jerusalem on May 21. Davis shares the prize with **Masatoshi Koshih**, University of Tokyo, Japan. Both scientists were recognized for their "pioneering observations of astronomical phenomena by detection of neutrinos, which created the emerging field of neutrino astronomy."



Secretary of Energy Bill Richardson has named **Barbara A. Mazurowski**, Director of the Department of Energy's West Valley Demonstration Project in New York, to be the new Operations Manager of the Department's Rocky Flats Environmental Technology Site in Colorado. Mazurowski most recently oversaw the successful completion of phase one of the West Valley site cleanup. Before joining the Department in 1991, Mazurowski was Acting Chief, Program and Technical Support Branch, Department of Defense Contract Management Area Office, Buffalo, N.Y.

David Sedillo has been appointed Assistant Regional Manager for the Department of Energy's Office of Inspector General (IG) Eastern Regional Audit Office in Oak Ridge, Tenn. He will serve as a senior IG staff member and provide day-to-day management of many of the audit activities of the Eastern Region. Sedillo has been with the Inspector General's office since 1988, starting in Albuquerque and most recently as Team Leader of the Denver Audit Group.



Brian E. Burke has been appointed Senior Advisor and Counselor for Intelligence and Security to Secretary Richardson. Burke will be responsible for assessing and making recommendations on policies involving security, intelligence, and counterintelligence within the Department of Energy. Most recently, Burke was Principal Deputy Assistant Secretary of the Army. He previously served as Deputy Under Secretary of Agriculture and as a Senior Policy Analyst on the Domestic Policy Council.

William Chandler, a research scientist and Director of the Advanced International Studies Unit at the Department of Energy's Pacific Northwest National Laboratory, has received the World Climate Technology Leadership Award from the Climate Technology Initiative. The initiative is led by the International Energy Agency headquartered in Paris France. Chandler was recognized for founding a global network of energy efficiency centers in Bulgaria, the Czech Republic, the People's Republic of China, Poland, the Russian Federation, and Ukraine.



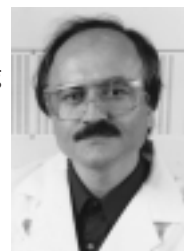
Marla K. Marvin is the new Director, Office of Intergovernmental, Public, and Institutional Affairs, at the Department of Energy's Richland Operations Office. Marvin will direct and manage media and institutional relations; legislative, congressional, and intergovernmental affairs; public involvement; tribal interactions; and general public and community outreach. Most recently, she was Legislative Director and Staff Counsel to U.S. Senator Patty Murray of Washington.

Arlene White, a Senior Buyer and Small Business Liaison Officer at the Department of Energy's Princeton Plasma Physics Laboratory (PPPL), is one of four recipients of Princeton University's 1999 Presidential Achievement Award. White, the only recipient from PPPL, was recognized for her leadership in the laboratory's Small Business Program since its establishment in 1995, especially her outreach and sourcing efforts.



Richard Truly, Director of the Department of Energy's National Renewable Energy Laboratory (NREL) since May 1997, has been elected to membership in the National Academy of Engineering. Truly was cited by the Academy for his leadership and personal contributions in the advancement of national civil and military space programs. Before coming to NREL, Truly was Vice President and Director of the Georgia Tech Research Institute. He served as Administrator, National Aeronautics and Space Administration from 1989 to 1992.

Argonne National Laboratory materials scientist **Ali Erdemir** has won the American Society of Mechanical Engineers' Innovative Research Award for his consistent and pioneering contributions to the science of tribology (the study of friction). Erdemir recently developed a "near-frictionless" carbon coating with a coefficient of friction less than .001 when tested in a dry nitrogen atmosphere—20 times lower than the previous record holder—and with the highest wear resistance of any solid material.



Don Seaborg is the new Department of Energy site manager at the Paducah Gaseous Diffusion Plant in Kentucky. Most recently, Seaborg was project manager of the Department's Plutonium Finishing Plant in Richland, Wash.

Nine researchers at the Department of Energy's Los Alamos and Oak Ridge National Laboratories have been named Fellows of the American Physical Society. Honored at Los Alamos were **Greg Canavan**, Physics Division; **Alan Glasser**, Plasma Theory Group; **Terrence Goldman**, Medium Energy Theory Group; **Richard Hughes** and **Seppo Penttila**, Neutron Science and Technology Group; **Michael E. Jones**, Plasma Physics Applications Group; and **Albert Migliori**, National High Magnetic Field Laboratory. At Oak Ridge, **Steven Paul Hirshman**, Fusion Energy Division, and **Gene Ice**, Metals and Ceramics Division, were elected.

George Samara, a researcher at the Department of Energy's Sandia National Laboratories, is the recipient of the American Chemical Society's Earle B. Barnes Award for 2000. The award recognizes Samara's leadership in managing core research at Sandia, managing Sandia's DOE Basic Energy Sciences Materials Sciences program, and creating the DOE Center for Excellence for the Synthesis and Processing of Advanced Materials.

Rusi Taleyarkhan of the Engineering Technology Division at the Department of Energy's Oak Ridge National Laboratory, has been elected a Fellow of the American Nuclear Society. Taleyarkhan is a group leader and program manager for projects ranging from nuclear safety to explosion initiation/prevention and novel propulsion systems development. ❖

Milestones

YEARS OF SERVICE

March 2000

Headquarters

Office of the Secretary - Alethia Marble (30 years). **Chief Financial Officer** - Isaac C. Smith (40), Jean M. Morgan (25). **Congressional & Intergovernmental** - James D. Threlkeld (40). **Defense Programs** - Melvin P. Leifer (30), John K. Olverson (25), Linda S. Thomas (25). **Energy Efficiency** - Shelley N. Fidler (25). **Envir. Management** - Donna J. Myers (30).

Envir., Safety & Health - Edward N. Patigalia (35), Barbara B. Halter (25), Manikonda V. Sastry (25), Mark H. Williams (25). **Fossil Energy** - H. William Hochheiser (25). **General Counsel** - Stephen A. Dove (25), Lise Courtney M. Howe (25). **Hearings & Appeals** - Robert A. McCann (30). **Management & Administration** - Asa H. Hardison III (30), John A. Severn (30), Bruce A. Pomponio (25).

Nuclear Energy - Kenneth C. Jones (30). **Policy** - Frederick H. Abel (35).

Public Affairs - Bonnie S. Winsett (30). **Radioactive Waste** - Christine M. Lukasik (30). **Science** - John E. Metzler (30). **Security & Emergency Operations** - Francis P. Casaleno (30). **Worker & Community Transition** - Lyle P. Brown (30).

Field

Albuquerque - Betty J. Sigler (35), Robert J. Steen (35), Richard R. Dalton (30), Allan M. Herrbach (30), Sharon E. Klafke (30), George K. Laskar (30), James L. Robbins (30), James H. Bird (25), Viola T. Woods (25). **Golden** - John H. Kersten (30). **Idaho** - Warren E. Bergholz, Jr. (30). **National ETL** - Gary F. McDaniel (35), Joseph P. Tamilia (30), Jo Ellen Dalton (25), Leslie R. Davis (25).

Nevada - Robert C. Furlow (30), Tony L. Jensen (30), Tomizo C. Senteney (30), Grover Lewis (25), Cynthia Miyashiro (25). **Oak Ridge** - William R. Bowden (35), Shirley C. Vogel (35), Chung-Tung Shen (30), Wayne M. Yoder (30), Robin Q. Spradlen (25). **Oakland** - James E. Anderson (30), Vianna Briscoe (30). **Richland** - Lila L. Trout (30), Michael K. Barrett (25), Hugh A. Harris, Jr. (25),

Dianne L. Henrich (25), Vicki A. Melling (25).

Rocky Flats - John A. Stover (25 years). **Schenectady Naval Reactors** - Clarence F. Dobbert (30). **Strategic Pet. Reserve** - David W. Brine (30), Gary C. Landry (30). **Western Area Power** - William H. Howell, Jr. (30), Sharon E. Bates (25), N. June Glover (25), Pamela D. Petersen (25), David J. Schilder (25), Reta R. Taylor (25), Rita J. Vicory (25).

RETIREMENTS

February 2000

Headquarters

Energy Efficiency - Dolores M. Pollard (25 years). **Security & Emergency Operations** - John F. Cooley (33).

Field

Albuquerque - Mary M. Keck (22), Emmanuel B. Morales (11). **National ETL** - Louis E. Dalverny (32), Michael J. Baird (20). **Western Area Power** - Robert W. Jones (22). ♦

NEW ON THE Internet

Central Internet Database

The Department of Energy's new Central Internet Database (CID), <http://cid.em.doe.gov>, provides easy public access to information on radioactive waste and hazardous materials at Department sites. The CID includes detailed information on Department inventories and management activities for low-level, transuranic and high-level waste; contaminated media; spent nuclear fuel; facilities; non-radioactive hazardous waste; toxic chemicals; materials in inventory; and buried transuranic waste.

The database was developed as part of a 1998 settlement agreement with the Natural Resources Defense Council and other groups, which sought to provide information to help improve public understanding

of the cleanup of the Department's nuclear weapons complex. Under terms of the agreement, the Department will regularly update the data for at least the next six years.

The creation of the database was supported by the Offices of Environmental Management; Defense Programs; Science; and Nuclear Energy, Science and Technology.

PrePRINT Network

The Department of Energy's Office of Scientific and Technical Information (OSTI) has a new Web-based tool called PrePRINT Network, <http://www.osti.gov/preprint/>. The network provides access to energy-related papers, draft journal articles, and other electronic materials produced by researchers in the areas of physics, materials, chemistry,

mathematics, biology, environmental sciences, and other areas related to the Department's research interests.

Numerous existing databases and Web sites contain this information for specific projects or disciplines. The PrePRINT Network combines these dispersed sites into a comprehensive set of energy research information and makes them all searchable via a single query. Links are provided to 250 preprint sites housing over 215,000 documents, and over 20 heterogeneous preprint databases are available for cross-searching.

PrePRINT Network is available to the public through OSTI's EnergyFiles at <http://www.osti.gov/energyfiles>. For more information, contact R. L. Scott, OSTI, 865-576-1193. ♦

Designs sought for Forrestal 'Sun Wall'

On Feb. 28, 2000, the Department of Energy and The American Institute of Architects announced a national design competition for the largest solar energy system on a United States Federal Government building and one of the largest such systems on any building in the world. In the process the Department's Forrestal Building headquarters in Washington, D.C., will become the home of the world's largest "Sun Wall." The wall, which is currently blank, spans a space nearly two-thirds of an acre.

"By demonstrating on our own headquarters building that solar energy systems can be attractive as well as practical, we will show the real benefits of clean energy technologies available today," said Secretary of Energy Bill Richardson. "Once completed, the solar energy project will join other landmarks in our nation's capital."

The Sun Wall design competition opened March 1 and closes Aug. 1, 2000. A \$20,000 cash prize is scheduled to be awarded to the winning design team during Energy Awareness Month 2000 in October. Information on the contest is available at <http://www.doe-sunwall.org> or by contacting Dr. E. Jackson, Jr., The American Institute of Architects, 1735 New York Avenue, N.W., Washington, DC 20006-5292, 202-626-7446.

March 2000

AROUND DOE

Draft strategic plan focuses on the future

A working draft of the new Department of Energy Strategic Plan is available on the Internet at http://www.doe.gov/strategic_plan.

The Strategic Plan establishes the missions, objectives, long-term performance goals, and strategies for the Department. The draft plan is an update to the September 1997 Strategic Plan and builds on the strategic planning that has been done throughout the Department since that time.

As part of the consultation process, the draft plan was sent to Congressional staff, other federal agencies, and senior staff. Key stakeholders, consumer groups, and Department and contractor employees were notified of the draft plan's Internet site for comments.

For more information, contact William Kennedy, 202-586-0423.

Final decision released on waste treatment, disposal

On Feb. 25, 2000, the Department released its Record of Decision for low-level waste (LLW) and mixed low-level waste (MLLW) treatment and disposal sites. The decision enables the Department to move forward with the closure of former defense nuclear facilities and redirect funds now spent on waste storage back into actual cleanup work.

For LLW, each site will continue to treat its own waste. Disposal of onsite low-level waste will continue at sites with LLW disposal facilities (Hanford, Idaho, Los Alamos, Nevada Test Site, Oak Ridge, and Savannah River). Hanford and Nevada Test Sites will continue to be used to dispose of LLW from DOE sites with no disposal capacity.

The Department will continue to use Hanford, Idaho and Oak Ridge and will begin to use Savannah River to treat mixed low-level waste from other DOE sites. For MLLW disposal, the Department will begin using disposal facilities already constructed at Hanford and Nevada Test Sites for off-site waste.

The Record of Decision was published in the *Federal Register* on Feb. 25. It also is available at <http://www.em.doe.gov> under "Publications" and "List of Publications" or by calling 800-736-3282 (in DC, 202-863-5084). ♦

**United States
Department of Energy (PA-40)
Washington, DC 20585**

Official Business